Space Weather Forecast

Issued on Saturday 1 March 2025 at 01:07 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Moderate-class flares. Chance G1-G2/Minor-Moderate Storms day 1 (01 Mar).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low with occasional common class flares. The largest of these was at 28/1628 UTC from the weakening region in the north-centre disc. There are seven regions currently on the Earth-facing disc, with two of note due to their ongoing development. The first is just west of the south-centre disc, with the second in the northwest. The first is is a very small region, but with an unusual magnetic structure, with both its trailer and leader of the same magnetic polarity but with opposite polarity spot between. The second is magnetically simpler, maturing into a bipolar group, but continues to show some ongoing growth. The other regions remain smaller and simpler.

No Earth directed Coronal Mass Ejections (CMEs) occurred.

Solar Wind / Geomagnetic Activity: Connection to the fast solar winds from a coronal hole was observed through this period. Solar wind speed was initially Elevated at just under 600km/s, then became Strong from around 28/1100 UTC rising to peak 770km/s by 28/1730 UTC, before easing a little back to around 700km/s by 01/0000 UTC. Interplanetary Magnetic Field eased from Moderate to Weak. The north-south component, Bz, was occasionally Moderate at first, but tended to be Weak and predominately northward directed from 28/1530 UTC. Geomagnetic activity was Unsettled to G1/Minor Storm, with these Minor Storms observed 28/0000-0300 UTC, 28/0600-0900 UTC and 28/1200-1500 UTC.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) eased from being very slightly above background, to be at background, and well below the S1 Minor Radiation Storm level.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be Low to Moderate with an ongoing chance of isolated Moderate class flares.

Solar Wind / Geomagnetic Activity: There is a chance of glancing CME impact early on 01 Mar, from the eruption off the east disc on 26 Feb. Otherwise the ongoing fast solar winds at first are expected to gradually ease, with Strong winds gradually and erratically easing to Background. Quiet to Active geomagnetic activity at first, but a chance for G1-G2 Minor to Moderate storm

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intervals if any CME glance occurs early on day 1 (01 Mar). Activity becoming mainly Quiet with isolated Unsettled intervals by day 3 (03 Mar).

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is expected to be at background with no Solar Radiation Storms occurring.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	Yes	40	10	1	1
Strong	G3	No	5	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	50	50	50	50
Very Active	R3-R5 (X Class)	No	5	5	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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